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09/922,484	08/03/2001	Joel D. Medlock	9824-070-999	7277

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EXAMINER

LE, LANA N

ART UNIT PAPER NUMBER

2685

DATE MAILED: 02/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/922,484

Applicant(s)

MEDLOCK ET AL.

Examiner

Lana N. Le

Art Unit

2685

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 November 2005.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 and 29-38 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-12, 16-18, 29, 30 and 36-38 is/are rejected.
7) ☒ Claim(s) 13-15, 19, and 31-35 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 32 is objected to because of the following informalities: step d) is in claim 31 and not 30, therefore claim 32 should depend on claim 31. Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 29-30 and 36 are rejected under 35 U.S.C. 102(b) as being anticipated by Smith et al (US 6,006,075).

Regarding claim 29, Smith et al disclose an electronic device having a processor (32), a computer readable memory (46), and at least one transmitter resource (18) coupled to the processor (32) and computer readable memory (46), a method of scheduling the transmitter resources for a desired channel, the method comprising the steps of:

a) providing an enabling signal (via 84) from the computer readable memory (46) to only the transmitter resource (18) driving a given antenna (26) (col 9, lines 31-57);
and

b) transmitting operating information to operate only the transmitter resource (select one of 18) driving a given antenna (26) (col 9, lines 31-57).

Regarding claim 30, Smith et al disclose the electronic device recited in claim 29 wherein the method for scheduling the transmitter resources further comprises the step of:

c) transferring control from an inherent first list in memory for scheduling antennae (via 24) to a second list in memory for scheduling transmitter resources (via 84) only destined for a given antenna (26) (col 9, lines 31-57).

Regarding claim 36, Smith et al disclose the electronic device recited in claim 29 wherein the method for scheduling the c) executing the transmitter resources multiple times for different transmission signals within a system cycle within selected sequences (col 9, lines 48-57).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-2, 4-12, 16 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith et al (US 6,006,075) in view of Westall et al (US 6,718,161).

Regarding claim 1, Smith et al disclose an electronic device (figs. 1, 4) for generating a signal, the electronic device comprising:

a plurality of transmitter resources (18) for generating transmission signals (col 6, lines 57-62);

an output bus (24) coupled to the plurality of transmitter resources, the output bus selectively receiving transmission signals from the plurality of transmitter resources (col 9, lines 37-57).

Smith et al do not disclose an antenna summer coupled to an output bus, the antenna summer storing transmission signals received on the output bus. Westall et al disclose an antenna summer (transmission buffers 36; fig. 3) coupled to an output bus (switch 30), the antenna summer storing transmission signals received on the output bus (col 3, lines 62-67). It would have been obvious to one of ordinary skill in the art at the time the invention was made add an antenna summer to the device of Smith et al in order to

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store transmission signals into buffers and to transmit the stored signal therefrom based on which signal needs to be sent first as suggested by Westall et al (col 3, lines 62-67).

Regarding claim 2, Smith et al and Westall et al disclose the electronic device recited in claim 1 wherein Smith et al and Westall et al do not specifically disclose the antenna summer is a multi-port device allowing simultaneous read and write operations therein. However, it is well known that memory buffer are capable of getting data and saving data. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to receive and store data into buffer while also transmitting data to the antenna.

Regarding claim 4, Smith et al and Westall et al disclose the electronic device recited in claim 1 wherein Westall et al disclose the device further comprising:

a plurality of memory buffers (36) coupled to an output bus each of the plurality of memory buffers designated to store the transmission signals designated for a respective one of antennae (12; fig. 3; col 3, lines 62-67).

Regarding claim 5, Smith et al the electronic device recited in claim 1 further comprising:

an input bus (16) coupled to the plurality of transmitter resources, the input bus for receiving data signals to be processed by the plurality of transmitter resources (see fig. 1; col 9, lines 9-11).

Regarding claim 6, Smith et al the electronic device recited in claim 5 wherein the input bus (16) communicates information to the plurality of transmitter resources (18) in a serial manner (each signal 16 is connected serially to each transmitter 18; see fig. 1).

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Regarding claim 7, Smith et al disclose the electronic device recited in claim 1 wherein Smith et al disclose the device further comprising:

a processor (32) coupled to the plurality of transmitter resources, and
a computer readable memory (46) coupled to the processor, the computer readable memory (46) containing instructions and data that, when executed on the processor, implement a method for scheduling the plurality of transmitter resources via 84 (col 7, lines 30-60).

Regarding claim 8, Smith et al disclose the electronic device recited in claim 7 wherein the method for scheduling (via controller 32) the plurality of transmitter resources comprises:

- a) providing an enabling signal from the computer readable memory (46) to only a transmitter resource slated for a given antenna (26) (col 9, lines 31-57); and
- b) transmitting operating information to operate only the transmitter resource (18) slated for the given antenna (26) (col 9, lines 31-57).

Regarding claim 9, Smith et al disclose the method recited in claim 8 wherein the method further comprises the step of:

- c) transferring control from an inherent first list in memory (46) for scheduling antennae (via 24) to a second list in memory (46) for scheduling transmitter resources (via 84) only destined for a given antenna (col 9, lines 31-57).

Regarding claim 10, Smith et al disclose the electronic device recited in claim 9 wherein the method for scheduling the plurality of transmitter resources further comprises the steps of:

d) returning control from the second list for scheduling transmitter resources to the first list for scheduling antenna when the second list is exhausted using repetitive sequences (col 9, lines 31-57).

Regarding claim 11, Smith et al disclose the electronic device recited in claim 8 wherein the method for scheduling the plurality of transmitter resources comprises the step of:

c) communicating operating information from the computer readable memory (46) only to the transmitter resources (via baseband switching only to the transmitter 18) that will transmit signals to the given antenna (26).

Regarding claim 12, Smith et al disclose the electronic device recited in claim 8 wherein the operating information stored in the computer readable memory includes context information such as parameter information, timing information, state information, or configuration information (switch configuration and position information; col 9, lines 67 – col 10, line 7).

Regarding claim 16, Smith et al disclose the electronic device recited in Claim 9 wherein the method for scheduling the plurality of transmitter resources further comprises the step of:

d) executing the transmitter resources multiple times for different transmission signals within a system cycle based on the selected sequences (col 9, lines 48-57).

Regarding claim 38, Smith et al disclose an electronic device (10) for generating a signal, the electronic device (10) comprising:

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a plurality of transmitter resources (18) for generating transmission signals (col 6, lines 57-62);

a means (24) for communicating transmission signals from the plurality of transmission resources (18) to the antennae (26) for a given antenna in a serial manner (fig. 1, 4; col 9, lines 37-57).

Smith et al do not disclose:

an antenna summer coupled to the plurality of transmitter resources, the antenna summer storing transmission signals. Westall et al disclose an antenna summer (transmission buffers 36; fig. 3) the antenna summer storing transmission signals (col 3, lines 62-67). It would have been obvious to one of ordinary skill in the art at the time the invention was made add an antenna summer to the device of Smith et al in order to store transmission signals into buffers and to transmit the stored signal therefrom based on which signal needs to be sent first as suggested by Westall et al (col 3, lines 62-67).

6. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Smith et al (US 5,862,492) in view of Miyahara (US 6,449,469).

Regarding claim 3, Smith et al disclose the electronic device recited in claim 1 wherein Smith et al do not disclose the antenna summer includes a plurality of memory buffers that form a ping-pong buffer system. Miyahara discloses the antenna summer includes a processor having memory for storing separate antenna information for each antenna element (col 4, lines 29-35). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the antenna summer of Smith

et al to have memory buffers in order to store separate information relating to each input from the separate transceivers (TRXs) into the antenna combiner.

7. Claims 17 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith et al in view of Rostoker et al (US 6,111,863).

Regarding claims 17 and 37, Smith et al disclose the electronic device recited in claim 1 and 29 respectively wherein Smith et al do not disclose the plurality of transmitter resources that service an antenna array is less than the number of antenna in the antenna array. Rostoker et al disclose the plurality of transmitter resources that service an antenna array is less than the number of antenna in the antenna array by combining the transmitter resources via 48 (fig. 6; col 8, lines 51-62). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the transmitter resources in order to provide a composite signal, i.e. spread spectrum signal as suggested by Rostoker et al (col 8, lines 51-62) and reduce the number of needed antennae elements.

8. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Smith et al in view of Yuzawa (US 2001/0,001,611).

Regarding claim 18, Smith et al disclose the electronic device recited in claim 1 wherein Smith et al do not disclose the plurality of transmitter resources is limited to the worst-case load of number of transmitter resources needed for any single antenna within a group of antennae. Yuzawa discloses a plurality of transmitter

resources (1) is limited to the worst-case load of number of transmitter resources needed for any single antenna within a group of antennae (antenna inherent within transmitting equipment 4) (paras. 40, 44) It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a plurality of transmitter resources in order to cope with transmitting audio and video signals through a plurality of channels in one frequency band as suggested by Yuzawa (para. 40).

Allowable Subject Matter

9. Claims 13-15, 19, 31-35 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claim 13, Smith et al disclose the electronic device recited in claim 8 wherein Smith et al and the cited prior art do not disclose the method for scheduling the plurality of transmitter resources comprises the step of:

c) communicating to a given transmission resource an address of a source having data to be processed by the given transmission resource.

Regarding claim 14, Smith et al disclose the electronic device recited in claim 8 wherein the method for scheduling the 30 plurality of transmitter resources comprises the step of:

c) disabling the control information stored in the second list for a given antenna for a channel that will stop transmitting from the given antenna.

Regarding claim 15, the electronic device recited in Claim 8 wherein Smith et al and the cited prior art do not disclose the method for scheduling the plurality of transmitter resources comprises the step of:

c) sequencing operating information for a given channel sooner in the second list for channels having a high priority.

Regarding claim 19, Smith et al disclose the electronic device recited in claim 1 wherein Smith et al and the cited prior art do not disclose the electronic device further comprises:

at least one configurable transmitter resource that is parameterizeable by the control information to satisfy a transmission protocol for any one of a plurality of channel formats.

Regarding claim 31, Smith et al disclose the electronic device recited in claim 30 wherein Smith et al and the cited prior art do not disclose the method for scheduling the transmitter resources further comprises the step of:

d) returning control from the second list for scheduling transmitter resources to the first list for scheduling antenna when the second list is exhausted.

Regarding claim 32, Smith et al disclose the electronic device recited in claim 31 wherein Smith et al and the cited prior art do not disclose the method for scheduling the transmitter resources further comprises the step of:

e) repeating steps a) through d) in a serial manner for a plurality of antennae.

Regarding claim 33, Smith et al the electronic device recited in claim 29 wherein Smith et al and the cited prior art do not disclose the method for scheduling the transmitter resources further comprises the step of:

c) disabling the operating information stored in the memory for a channel that desires to stop transmitting from a given antenna.

Regarding claim 34, Smith et al disclose the electronic device recited in claim 29 wherein Smith et al and the cited prior art do not disclose the method for scheduling the transmitter resources further comprises the step of:

c) resequencing the control information stored in memory for a channel from a location slating the channel to a first antenna to a location slating the channel to a second antenna.

Regarding claim 35, Smith et al disclose the electronic device recited in claim 29 wherein Smith et al and the cited prior art do not disclose the method for scheduling the transmitter resources comprises the step of:

c) sequencing the control information in memory for a given antenna according to a user-determined priority associated with each channel.

Response to Arguments

Applicant's arguments filed 11/15/05 have been fully considered but they are not persuasive.

Regarding applicant's remarks on the restricted claims, the examiner believes that the restriction was proper since the dependent claim 19 discussed in the preamble

claims 20 and 24 does not make the details of the entire independent claims 20 and 24 non-distinct inventions.

With respect to claims 29 and 38, all of the "plurality of transmitter resources" are labeled as numeral reference number "18" in the reference, Smith et al (US6,006,075) since the reference does not label each one as separate numeral references but it is understood in the figure that each transmitter resource 18 is a separate resource in the plurality of transmitter resources "18".

With regards to claim 1, in response to applicant's argument the secondary reference, Westall, added to the main reference was not properly combined, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). Since the claim states "an output bus selectively receiving transmission signals from the transmitter resources", the RF switch and its wire connection to the antenna for transmission of Smith reads on this limitation for diversity reception. The substitution of the memory buffers before transmitting for the RF switch of Smith is together as a whole, as a modified device combinable and is reasonable to one of ordinary skill in the art. Therefore, the rejection stands as set forth in the previous office action, filed 6/17/05.

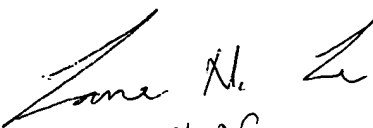
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lana N Le whose telephone number is (703) 308-5836. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward F Urban can be reached on (703) 305-4385. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lana Le



01-31-06

**LANA LE
PRIMARY EXAMINER**